

For Education: Evaluation Of The Sustainability Of Universal Architecture Which Includes Social Issues: Culture, Aesthetics, And Landmarks As An Emotional Aspect

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Abstract

The research project indispensably complements to assess the sustainability of the architecture, which was developed at the University of Cuenca. This has followed a path that is not based on the main international tools such as LEED, BREAM, CASHBE, GREEN, etc. which has been read previously. This was for the purpose of avoiding it from being an adaptation or a summary. This study is based primarily on the knowledge of an emerging and diverse country like Ecuador. It also involves having a knowledge of its different climates, cultures, and other countries of the world. It has a comparison of the results with the main international tools and proposes a tool with respect to all cultures. It assesses human welfare and social deprivation. In addition, it includes something that is not addressed by these tools i.e. the evaluation of the aesthetic milestones identity. It assesses different buildings in the world, and highlights the value of aesthetics and milestones. This brings about a strong presence of creativity in teaching and the results of creative architecture design.

Keywords: Education, architecture, sustainability, esthetics, culturally, milestones

Introduction

Poor countries, in general, consume a little amount of energy. As a result, they have a little influence on the carbon footprint and the ecological damage to the planet. Thus, they have a lot of social-like dwelling. In other cases, the houses do not have basic services which leads to health problems, unemployment, etc (Macías & Navarro (2010) [1], Ihlen (2009) [2]).

On the other hand, different cultures must be adequately understood. These areas include their characteristics in some aspects that are subjective and cultural like overcrowding. For example, the Western world has indicators such as two people in a room. The Shoaras, for example, live several families in a big space because of their sexual life.

These tools evaluate the heritage, the identity, esthetics, and the milestone architectonic like part of the social aspects of the country. These aspects should be evaluated all around the world. Subsequently, this is accomplished by putting into consideration the different places and cultures, where the carbon footprint and the energetic consumption are not the only aspects for the evaluations.

Objective: To search a different tool that is not an abstract or an adaptation of the most common. This tool is considered as sustainability in a broad and comprehensive sense. However, in their definition, it is also considered as part of the social, cultural, and emotional aspects.

In addition, this broad view is applied to the teaching and practice of architectural design which focuses on creativity and milestones.

Methods

a. It is principally based on experimenting in an emergent and in a different country like Ecuador, visiting all their different climatic zones, and visiting other countries of the world too.

In this project, the path is not considered as the primary international tools such as LEED, BREAM, CASHBE, GREEN, etc. Thus, this was done such that the result is not an adaptation, a copy, or a reduction of any of them.

b. This state confronts the proposal with the principal international tools. It proposes a tool with respect to all cultures and the assessment of the contributions that architecture does to the social wellbeing, human wellbeing, and the assessment of the emotional aspects.

c. Application of this tool to different buildings all around the world.

e. Application of the importance of creativity to teaching and architectural design.

Results and Discussion

A. Travelling to different climatic regions

Ecuador is a country with practically all the climates of the world from the warm damp of the Amazon rainforest to the dry warm beaches and deserts. Thus, the Moor is 3000 m high, while the glacier is over 5000 m high.

It even also has ancestral and local cultures as well as Western culture. This project has been participating in events in different continents. In addition, it is applying and testing the tool in any context.

Based on the summary of the trips carried out so far, we have produced a series of papers and articles which are recorded in table 1.

Consequently, each trip entails the testing and the refining of the tool used for development.

Table 1. Resumen de las viajes efectuadas

| Destination | Cities | Events and Date |
|---|--|---|
| SIERRA SUR, COSTA CENTRO | Cajas Guayaquil, Montañita, Salinas. Confort diferente casa sana | Seminar sustainability, 2013. |
| SIERRA CENTRO, ORIENTE TAMBO | Cañar, Chimborazo, Baños, Puyo, Macas, cola de San Pablo, Paute Cuenca | Seminar sustainability, 2014. |
| SIERRA NORTE, COSTA NORTE | Quito, Mitad del Mundo, Same, Atacames, Casa Blanca Esmeraldas | Reflections Plus aspects, 2015. |
| España y Emiratos Árabes | Madrid Valencia Dubái y Abudabí | Congress Conama Madrid |
| Galápagos | Baltra y San Cristóbal | Evaluation of ecological Galapagos Baltra airport |
| ESPAÑA GRECIA ITALIA | Granada Córdoba, Sevilla, Florencia, Pisa | Exhibition in Seville 2015 and evaluation of aesthetic and milestones |

These visits are emerging in several reflections. Below, we mention some of these visits:

Energy and environmental aspects are not the only ones that are important to assess in most countries of the world. Other aspects include the contributions to social problems such as unemployment, housing, services, health etc.

The influence of the modern architecture of cement concrete and aluminum has spread widely. This constitutes the same architecture or the same House in different contexts, such as warm climates and fells. Thus, this results to inappropriate behavior against climate and culture architecture.

Therefore, it will be important to assess and reward the inclusion of technical systems, local building materials, and bioclimate.

Aspects such as aesthetics are an essential part of the architecture. They differ from other forms of construction, and are largely supporters of the wonder of the beauty of the world. In the same way, milestones give

cities identity, self-esteem, tourism, and revitalization of the economy. Thus, each of these points will not be treated extensively in this article by their extension.

B. In this State, we will do a revision of the best known international tools to see if content existent may be important in the new scheme, and that it has not been considered.

Table [2], Comparison with tools and places, show the aspects detected. Its difference or coincidence with the tools, shows more frequently that the social aspects are more important in poor countries. Other aspects of carbon footprint are more common in rich countries, while aspects of emotion are very important in the whole world today. However, they were almost not been considered as part of the tools up till now.

RELATIONAL MATRIX OF ASPECTS CONSIDERED AND THEIR WEIGHT

| Aspects to be considered in the proposed tool | Considered in other tools | | | Importance or weight weighted relative | | PESO PONDERADO PROPUESTO PARA HOY | aspecto |
|--|---------------------------|--------|----------------|--|----------------|-----------------------------------|---------|
| | Much | little | almost nothing | poor countries | rich countries | | |
| SOCIAL ASPECTS lacks and social deficits | | | | | | C No tienen ese problema | |
| Contribution to reduce the housing deficit | | | | | | | |
| Creation of national sources of work, in materials, constructive system and use | | | | | | | |
| Stimulate the economy to produce work and income for the poorer classes | | | | | | | |
| Availability of basic services, potable water, electric light, convenient sewage treatment | | | | | | | |
| Avoid risks of disasters | | | | | | | |
| Good condition of the facilities | | | | | | | |
| Minimal material, non-toxic, but according to the cultures, climate and use | | | | | | | |
| Innovation with good results | | | | | | | |
| Good condition of the building | | | | | | | |
| Climate comfort, luminous, auditory, others, but according to the cultures | | | | | | | |
| each culture (2 hab per room does not in any culture) | | | | | | | |
| healthy House that does not cause disease | | | | | | | |
| SYNTAX OR ASPECTS OF FUNCTIONAL QUALITY | | | | | | | |
| Well-being of their occupants | | | | | | | |
| Accessibility and inclusion of all | | | | | | | |
| QUALITY OF CONTEXT | | | | | | | |
| Green spaces. Special value for the native landscape | | | | | | | |
| Trade, sport, Osio, education, health | | | | | | | |
| Availability of transport | | | | | | | |

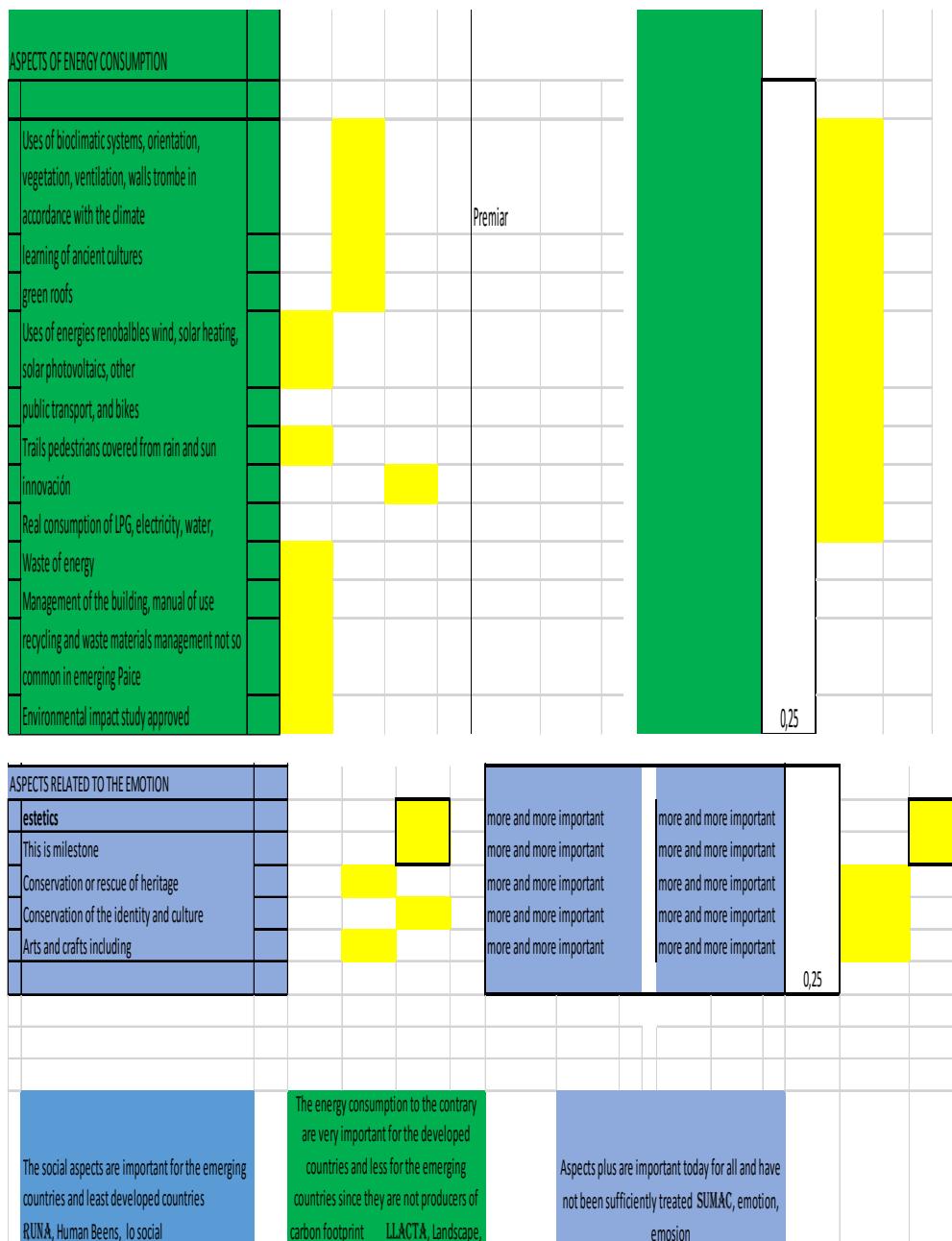


Table [2]

Therefore, we can see that there are areas considered with sufficiency in the international tools as the energy footprint carbon recycling. On the other hand, there are others considered as little or few tools such as social and human shortcomings. There are others that have not been considered as virtually nothing. They include the emotion, the aesthetic, the milestone, the

art, and the identity being the very last important for developed countries, emerging countries, and the underdeveloped countries. Nevertheless, they are means or strategies for improving this economy.

C. Tool Runa Allpa Sumac

The proposed tool collects all the aspects raised, and the different consideration in different cultures. It pretends to be a universal tool for the evaluation of architecture and sustainability approaches.

Then, the certification granted in this case was applied to ecological Baltra airport in Galapagos.



Figure [1]

It was written in Kechua, Spanish, and English. Also, it can be produced in any additional language such as in Chinese or Arabic language.

Aspects of energy consumption and carbon footprint are important and are in a skyrocketing rate in more developed countries.

Consequently, the social aspects and its shortcomings are more important in poor countries of the world.

Nevertheless, aspects of emotion are fundamental all over the world. They have not been considered virtually in the evaluation of sustainability. As a result, greater learning and contribution of this tool is the evaluation of aesthetic and milestones. In addition, other aspects of emotion such as the heritage art and identity are, in reality, closely related to these aspects.

Therefore, some evaluations of aesthetics and the constituents of the milestones can be shown in the figures.

The Beauty And The Milestones

The milestones are not only fruits of the vanity of a few architects, but also of his genius. Thanks to these architects that the world have today. However, they have helped in finding them.

Being so useful and important, it is used to evaluate its presence. However, it is a subjective issue with a specialized method of surveys. It is followed by different groups of humans such as those who are experts, users, and the public in general.

| | | |
|--------------------------|--|--|
| | ASPECTOS SOCIALES QUE ATIENDEN A LA EMOCION Y SON SUBJETIVOS | Los aspectos subjetivos considerados en este apartado, son parte del bienestar de las personas tanto de las que habitan la arquitectura como de un |
| | evaluacion de la estética | Plaza España Sevilla Espana |
| | OBJETIVO | MÉTODO |
| 1 | Reconocer y premiar una serie de aspectos importantes de la arquitectura de la vida que generalmente no son valorados. | Se llenaran opiniones y de por lo menos 3 tipos de entrevistados, mínimo 2 de cada tipo |
| | CRITERIOS | CRITERIOS DE EVALUACIÓN |
| ESTÉTICA | Considera que la construcción es la mas agradable del Barrio o la zona. Considera que la obra estan entre las 5 mas agradables de la ciudad Considera ud. Que la construcción es bella. | poner 2 si es si, 1 si es tal vez, y cero si es no poner 2 si es si, 1 si es tal vez, y cero si es no poner 2 si es si, 1 si es tal vez, y cero si es no |
| | SUMAS | |
| | POCENTAJE EN CADA UNO DE LOS GRUPOS | 99% |
| | valoracion de la Belleza | |
| | evaluacion de la condición de ser o no un hito urbano arquitectonico | (arquitectura diferente y destacada por la cual se reconoce una zona, ciudad o país) |
| | OBJETIVO | MÉTODO |
| 2 | Reconocer a aquellas obras que hacen que un lugar o ciudad o pais sea particularmente conocido, visitado y que por ello dinamizan la economía | Se llenaran opiniones y de por lo menos 3 tipos de entrevistados, mínimo 2 de cada tipo |
| | CRITERIOS | CRITERIOS DE EVALUACIÓN |
| CREENCIAS DE ALGÚN NIVEL | Considera ud que la obra constituye un hito para el barrio Considera ud que la obra constituye un hito para la ciudad o la provincia o pais rural Considera ud que la obra constituye un hito para el Pais Considera ud que la obra constituye un atajo turismo nacional o extranjero al pais | poner 2 si es si, 1 si es tal vez, y cero si es no poner 2 si es si, 1 si es tal vez, y cero si es no poner 2 si es si, 1 si es tal vez, y cero si es no poner 2 si es si, 1 si es tal vez, y cero si es no |
| | SUMAS | |
| | POCENTAJE EN CADA UNO DE LOS GRUPOS | 89% |
| | PROMEDIO | |
| | LA OBRA EN LOS MEDIOS DE DIVULGACION | esta parte la llena el evaluador y equipo de evaluacion |
| | La obra consta en la mayoría de catálogos folletos o artículos que promociona turísticamente a la ciudad, o al pais, Porcentaje La obra es original, apreciación en porcentual | 95% 70% |
| | Calificación en constituir un hito importante | 85% |

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Revisado por equipo

| | | | |
|---|--|---|--|
| ASPECTOS SOCIALES QUE ATIENDEN A LA EMOCION Y SON SUBJETIVOS | | Los aspectos subjetivos considerados en este acápite, son parte del bienestar de las personas tanto de las que habitan la arquitectura como de quienes usan o son parte de una ciudad |  |
| evaluación de la estética | | LA GIRALDA Sevilla España | |
| OBJETIVO | MÉTODO | | |
| 1 | Reconocer y premiar una serie de aspectos importantes de la arquitectura y de la vida que generalmente no son valorados. | Se llenaran opiniones y de por lo menos 3 tipos de entrevistados entrevistados, mínimo 2 de cada tipo | |
| ESTÉTICA | CRITERIOS | CRITERIOS DE EVALUACIÓN | |
| | Considera que la construcción es la mas agradable del Barrio o la zona. | poner 2 si es si, 1 si es tal vez, y cero si es no | |
| | Considera que la obra estan entre las 5 mas agradables de la ciudad | poner 2 si es si, 1 si es tal vez, y cero si es no | |
| | Considera ud. Que la construcción es bella. | poner 2 si es si, 1 si es tal vez, y cero si es no | |
| | SUMAS | | |
| PORCENTAJE EN CADA UNO DE LOS GRUPOS | | POCENTAJE de valoracion de la Belleza 93% | |
| evaluacion de la condición de ser o no un hito urbano arquitectonico | | (arquitectura diferente y destacada por la cual se reconoce una zona, ciudad o país) |  |
| OBJETIVO | MÉTODO | | |
| 2 | Reconocer a aquellas obras que hacen que un lugar o ciudad o incluso país sea conocido y reconocido, visitado y que por ello dinamizan la economía | Se llenaran opiniones y de por lo menos 3 tipos de entrevistados entrevistados, mínimo 2 de cada tipo | |
| CREA HITOS DE ALGÚN NIVEL | CRITERIOS | CRITERIOS DE EVALUACIÓN | |
| | Considera ud que la obra constituye un hito para el barrio | poner 2 si es si, 1 si es tal vez, y cero si es no | |
| | Considera ud que la obra constituye un hito para la ciudad o la provincia si es rural | poner 2 si es si, 1 si es tal vez, y cero si es no | |
| | Considera ud que la obra constituye un hito para el País | poner 2 si es si, 1 si es tal vez, y cero si es no | |
| | Considera ud que la construcción atrae turismo nacional o extranjero al país | poner 2 si es si, 1 si es tal vez, y cero si es no | |
| | SUMAS | | |
| PORCENTAJE EN CADA UNO DE LOS GRUPOS | | POCENTAJE 81% PROMEDIO | |
| LA OBRA EN LOS MEDIOS DE DIVULGACION | | esta parte la llena el evaluador y equipo de evaluacion | |
| La obra consta en la mayoría de catálogos folletos o artículos que promociona turísticamente a la ciudad, o al país, Porcentaje | | 99% | |
| la obra es original, apreciacion en porcentaje | | 85% | |
| Calificación en constituir un hito importante | | 88% | |

Realizado por: Arq. Raúl Cordero
Revisado por equipo

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Revisado por equipo

| | | | |
|----------|--|---|--|
| | ASPECTOS SOCIALES QUE ATIENDEN A LA EMOCION Y SON SUBJETIVOS | Los aspectos subjetivos considerados en este acápite, son parte del bienestar de las personas tanto de las que habitan la arquitectura como de quienes usan o son parte de una ciudad |  |
| | evaluación de la estética | TORRE PELLI Sevilla España | |
| 1 | OBJETIVO | MÉTODO | |
| | Reconocer y premiar una serie de aspectos importantes de la arquitectura y de la vida que generalmente no son valorados. | Se llenaran opiniones y de por lo menos 3 tipos de entrevistados entrevistados, mínimo 2 de cada tipo | |
| | ESTÉTICA | CRITERIOS DE EVALUACIÓN | |
| | Considera que la construcción es la mas agradable del Barrio o la zona. | poner 2 si es si, 1 si es tal vez, y cero si es no | 2 1 1 2 2 0 0 2 2 1 0 2 |
| | Considera que la obra estan entre las 5 mas agradables de la ciudad | poner 2 si es si, 1 si es tal vez, y cero si es no | 2 1 2 2 1 0 0 2 1 0 0 2 |
| | Considera ud. Que la construcción es bella. | poner 2 si es si, 1 si es tal vez, y cero si es no | 2 1 1 2 2 0 1 2 1 1 1 2 |
| | SUMAS | | 6 3 4 6 5 0 1 6 4 2 1 6 |
| | ORCENTAJE EN CADA UNO DE LOS GRUPO | | 79% 50% 54% |
| | POCENTAJE de valoracion de la Belleza | | 61% |
| | | |  |
| | evaluacion de la condición de ser o no un hito urbano arquitectonico | (arquitectura diferente y destacada por la cual se reconoce una zona, ciudad o país) |  |
| 2 | OBJETIVO | MÉTODO | |
| | Reconocer a aquellas obras que hacen que un lugar o ciudad o incluso país sea conocido y reconocido, visitado y que por ello dinamizan la economía | Se llenaran opiniones y de por lo menos 3 tipos de entrevistados entrevistados, mínimo 2 de cada tipo | |
| | CREA HITOS DE ALGÚN NIVEL | CRITERIOS DE EVALUACIÓN | |
| | Considera ud que la obra constituye un hito para el barrio | poner 2 si es si, 1 si es tal vez, y cero si es no | 2 2 2 2 2 1 2 2 2 2 2 2 |
| | Considera ud que la obra constituye un hito para la ciudad o la provincia si es rural | poner 2 si es si, 1 si es tal vez, y cero si es no | 2 2 1 2 2 1 2 2 1 1 2 2 |
| | Considera ud que la obra constituye un hito para el País | poner 2 si es si, 1 si es tal vez, y cero si es no | 2 2 2 2 2 2 2 2 2 2 2 1 |
| | Considera ud que la construcción atrae turismo nacional o extranjero al pais | poner 2 si es si, 1 si es tal vez, y cero si es no | 1 0 1 1 1 0 0 1 0 0 0 1 |
| | SUMAS | | 7 6 6 7 7 4 6 7 5 5 6 6 |
| | ORCENTAJE EN CADA UNO DE LOS GRUPO | | 81% 75% 69% |
| | POCENTAJE PROMEDIO | | 75% |
| | LA OBRA EN LOS MEDIOS DE DIVULGACION | | esta parte la llena el evaluador y equipo de evaluacion |
| | La obra consta en la mayoría de catálogos folletos o artículos que promociona turísticamente a la ciudad, o al país, Porcentaje | 5% | |
| | la obra es original, apreciacion en porcentaje | 15% | |
| | Calificación en constituir un hito importante | 32% | |

Realizado por: Arq. Raúl Cordero
Revisado por equipo

Tables [3].

The examples show the assessments of historical buildings and the news of Sevilla, carried out by the project during a Congress of sustainability.

Here, we could show a comparison of the results. This has been the reason for other work extensively; and now, we are trying to show the evaluation of buildings in these subjective aspects. Subjective research has become a quantitative surveys based on methods such as Delphy for subjective investigations.

D. Application Of The Tool To 29 Cases Of Architecture In The World

This tool is one of the thousands used for averting the cost and the lack of universality. However, it is not intended to serve only those who requested for it, but to reward them. This measure is applied to 29 buildings and sites regarded as outstanding in one or more aspects: RUNE HIMANEN BEENS, ALLPA or LANDSCAPE, and SUMAC or EMOTION. As shown in the example, we can process the instructions below:



| | | TOOL FOR ASSESSING THE SUSTAINABILITY OF ARCHITECTURE AND LANDSCAPE | | | | |
|---|--|---|--|--|---|---|
|  | Aspectos sociales crea trabajo aporta a las carencias de vivienda de servicios dinamiza la economía confort casa sana síntesis funcionalidad | <i>Human Runa</i> |  | <i>Allpa Landscape Tierra</i> |  |  Aspectos de la Emoción belleza es un hito patrimonio identidad arte artesanía cultura local culturas apropiadas |
|  | uso de tecnologías alternativas tecnologías y sabidurías ancestrales innovación tecnológica |  | Poco consumo de energías no renovables Paisaje limpieza y salud del entorno |  |  | estrella |
|  | Las estrellas son méritos menores en cada aspecto, la luna es un mérito menor que una estrella. |  | econocimiento alto, equivalente a oro o platino. |  |  | sol medio |
|  | Director | colaboradores | autoridad |  |  | sol gigante |
| Cuenca 22 de agosto del 2015 | | | | | | |

Tables [4]